

## CLAIMS:

1. An audio data storage device comprising:
  - a storage device for storing audio data;
  - a channel detector for detecting a channel of the audio data;
  - an input sample number detector for detecting the number of
  - 5 samples of the audio data to be written into the storage device;
  - an output sample number detector for detecting the number of
  - samples of the audio data to be read from the storage device;
  - an address generator for generating an address for writing and
  - reading the audio data based on the channel detected by the channel
  - 10 detector, the number detected by the input sample number detector, the
  - number detected by the output sample number detector, the number of
  - channels of the audio data, and the number of samples included in one
  - channel; and
  - a controller for directing the storage device to read and write the
  - 15 audio data based on the address generated by the address generator.
2. An audio data storage device according to claim 1, further comprising:
  - a decoder for decoding coded audio data, wherein
  - the storage device stores the decoded audio data.

3. An audio data storage device according to claim 1, wherein the controller detects the number of channels and the number of samples included in the coded audio data, and outputs the numbers to the address generator.

4. An audio data storage device according to claim 1, further comprising:

an encoder for encoding audio data with a plurality of channels,

wherein

the storage device stores the audio data which is to be encoded.

5. An audio data storage device according to claim 1, wherein the controller stores the number of channels and the number of samples included in the encoded audio data, in advance.

6. An audio data storage device according to claim 1, wherein the address generator generates an address of the data to be read, in response to an instruction from the controller to read the data, and

the address generator generates an address of the data which has been read, in response to an instruction from the controller to write the data.

7. An audio data storage device according to claim 1, wherein the address generator comprises:

a first address generator for specifying a first sequence of addresses;  
and

a second address generator for specifying a second sequence of  
addresses, wherein

5       the controller directs the storage device to read and write the audio  
data while alternately switching the first address generator and the second  
address generator.

8.       An audio data storage device according to claim 1, wherein the  
storage device, the channel detector, the input sample number detector, the  
output sample number detector, the address generator, and the controller are  
provided in a semiconductor device.

9.       An audio data storage device according to claim 8, further  
comprising:

a decoder for decoding coded audio data, wherein  
the storage device stores the decoded audio data.

10.      An audio data storage device according to claim 8, wherein the  
controller detects the number of channels and the number of samples  
included in the coded audio data, and outputs the numbers to the address  
generator.

11. An audio data storage device according to claim 8, further comprising:

an encoder for encoding audio data with a plurality of channels,

wherein

the storage device stores the audio data which is to be encoded.

12. An audio data storage device according to claim 8, wherein the controller stores in advance the number of channels and the number of samples included in the encoded audio data.

13. An audio data storage device according to claim 8, wherein the address generator generates an address of the data to be read, in response to an instruction from the controller to read the data, and

the address generator generates an address of the data which has been read, in response to an instruction from the controller to write the data.

14. A computer-readable storage medium containing program instructions for performing the steps comprising:

a storage step for storing audio data;

a channel detecting step for detecting a channel of the audio data;

5 an input sample number detecting step for detecting the number of samples of the audio data to be written in the storage step;

an output sample number detecting step for detecting the number of

samples of the audio data to be read in the storage step;

an address generating step for generating an address for writing and

10 reading the audio data, based on the channel detected by the channel  
detecting step, the number detected by the input sample number detecting  
step, the number detected by the output sample number detecting step, the  
number of channels of the audio data, and the number of samples included  
in one channel; and

15 a control step for directing the storage step to read and write the  
audio data, based on the address generated by the address generating step.

15. A computer readable storage medium according to claim 14  
containing program instructions for performing the steps further comprising:  
a decoding step for decoding coded audio data, wherein  
the storage step stores the decoded audio data.

16. A computer readable storage medium according to claim 14  
containing program instructions for performing the steps further comprising:  
an encoding step for encoding audio data with a plurality of channels,  
wherein  
the storage step stores the audio data which is to be encoded.